REMARKS

Claim 4 has been amended. Claims 10-19 have been added. No new matter has been added. Support for the amendment to claim 4 and the new claims can be found throughout the specification, for example, page 11, lines 5-21, page 21, line 37 – page 27, line 21. Claims 4, 5, 8 and 9 have also been amended to make certain language (element vs. device; configured vs. adapted) consistent within the claims.

Reconsideration of the present application is requested.

REJECTION OF CLAIMS 4-7 AND 9 OVER DURHAM

Claims 4-7 and 9 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,785,826 to Durham et al. ("Durham"). It is respectfully submitted that Durham does not anticipate any of claims 4-7 and 9, for at least the following reasons.

Claim 4 recites, *inter alia*, the following:

> an enabling/disabling device adapted to at least one of: i) enable or disable power supply to a number of the data processing units, and ii) block full clock speed for the number of data processing units;
>
> * * *
>
> ***wherein the enabling/disabling element is adapted to be data driven.***

In accordance with example embodiments of the present invention, power consumption of a processing array can be reduced by disabling power or clock application to given array elements. This may be achieved by, for example, driving the enabling/disabling device with data. For example, in one embodiment, the enabling/disabling device enables a clock or power to an array element only when data is available for the array element.

In Durham, functional units simply monitor their own power dissipation. Each particular functional unit, e.g., 206, 212, 218 and 224, tracks its own internal operations and power dissipation, Col. 3, lines 43-50. According to Durham, each functional unit determines independently by its own methods and instructions when power dissipation with the functional unit is at an unacceptable level. Col. 3:51-54. Durham does not describe or even suggest that an enabling/disabling device is data driven.

For at least this reason, Durham does not anticipate claim 4, or any of claims 5-7 and 9, which depend from claim 4.

As regards the new claims 10 and 11 also depend from claim 4; accordingly, the arguments presented above apply to claims 10 and 11 as well.

As regards new claims 12-16, Durham does not disclose or suggest at least the following feature of claim 12:

> an enabling/disabling device adapted to, ***in response to an availability of data for at least one respective one of the data processing units***, at least one of: i) selectively enable or disable power supply to the at least one respective one of the data processing units, and ii) selectively block full clock speed for the at least one respective one of the data processing units

(Emphasis added).

As regards claims 17-19, Durham does not disclose at least the following feature of claim 17:

> an enabling/disabling device adapted to make a clock signal available to at least one respective one of the data processing units when an operand is ready for the at least one respective one of the data processing units.

For at least these reasons, Durham does not anticipate any of claims 4-7, 9, and 10-19. Withdrawal of the rejection over Durham is requested.

REJECTION OF CLAIMS 4, 5, and 7-9 OVER GUPTA

Claims 4, 5, and 7-9 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,996,083 to Gupta et al. ("Gupta"). It is respectfully submitted that Gupta does not anticipate any of claims 4, 5, and 7-9, for at least the following reasons.

Gupta does not disclose or even suggest an enabling/disabling device which is data driven, as recited in claim 4. Gupta describes that a power control register is set by software for a given functional unit when that functional unit is not required by the software. See, e.g., col. 3, lines 48-50. In order to reduce the clock frequency in the system described in Gupta, the software needs input of values that determine e.g., the clock of certain functional units such as integer multiply, divide, add and subtract, floating point, etc. See, col. 5, lines 50 ff. Additionally, particular instructions are need to re-power up a functional unit that previously had been powered down. Thus, the Gupta device is driven by instructions. In order to allow time for the functional unit to become fully operational, the microprocessor must stall until the functional unit is fully operational. This necessitates assumptions as to the hardware-dependant time needed for powering up which are made by a complier. See, e.g., col. 10, line 15. Several problems can arise, e.g., where the assumption made by the compiler regarding powering times does not match that specified by the actual power latency register, e.g., in cases where with same compiled code is to be used for different microprocessors.

Furthermore, as both powering down and powering up for functional units is controlled by software and/or the compiler, significant problems may be caused in cases where the power up instruction is omitted. The may lead to processor stall. Also, in cases where software has to be processed that comprises neither power up nor power down commands, no power is saved at all.

In accordance with claim 4, an enabling/disabling device is data driven. In example embodiments of the present invention, for example, powering up and powering down in not achieved via instructions; instead, a device is automatically enabled once data are provided. This allows, for example, power savings even with legacy software.

For at least the forgoing reasons, Gupta does not anticipate claim 4, or any of claims 5 and 7-9 which depend from claim 4.

As regards the new claims 10 and 11 also depend from claim 4; accordingly, the arguments presented above apply to claims 10 and 11 as well.

As regards new claims 12-16, Gupta does not disclose or suggest at least the following feature of claim 12:

> an enabling/disabling device adapted to, ***in response to an availability of data for at least one respective one of the data processing units***, at least one of: i) selectively enable or disable power supply to the at least one respective one of the data processing units, and ii) selectively block full clock speed for the at least one respective one of the data processing units

(Emphasis added).

As regards claims 17-19, Gupta does not disclose at least the following feature of claim 17:

> an enabling/disabling device adapted to make a clock signal available to at least one respective one of the data processing units when an operand is ready for the at least one respective one of the data processing units.

For at least these reasons, Gupta does not anticipate any of claims 4, 5, 7-9, and 10-19. Withdrawal of the rejection over Gupta is requested.

REJECTION OF CLAIMS 4 AND 7 OVER HANSEN

Claims 4 and 7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,498,132 to Hansen et al. ("Hansen"). It is respectfully submitted that claims 4 and 7 are not anticipated by Hansen, for at least the following reasons.

Hansen does not disclose or even suggest an enabling/disabling device which is data driven, as recited in claim 4. Hansen describes a plurality of functional planes what can be segregated by a segregator functional plane. This segregator functional plane is controlled by the Master Control Processor 10 to which control over the entire Segregatable Array Processor is periodically returned. This Master Control Processor 10 is used to segregate planes. Hansen describes that the segregator functional plane may be used to sever connections to unused or inactive functional planes (see, e.g., col. 34, 59-64); however, Hansen does not describe that the Master Control Processor is data driven.

As regards new claims 10 and 11, these claims depend from claim 4; accordingly, the arguments presented above in connection with claim 4 apply equally to claims 10 and 11.

As regards new claims 12-16, Hansen does not disclose or suggest at least the following feature of claim 12:

> an enabling/disabling device adapted to, ***in response to an availability of data for at least one respective one of the data processing units***, at least one of: i) selectively enable or disable power supply to the at least one respective one of the data processing units, and ii) selectively block full clock speed for the at least one respective one of the data processing units.

(Emphasis added).

As regards claims 17-19, Hansen does not disclose at least the following feature of claim 17:

> an enabling/disabling device adapted to make a clock signal available to at least one respective one of the data processing units when an operand is ready for the at least one respective one of the data processing units.

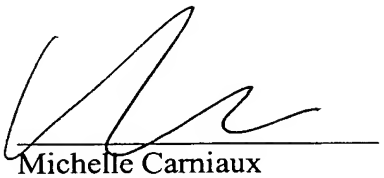
For at least the foregoing reasons, Hansen does not anticipate any of claims 4, 7, and 10-19. Withdrawal of the rejection over Hansen is requested.

CONCLUSION

It is respectfully submitted that all of the presently pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

Dated: 15 Nov 2006

By: 

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